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THE LESSON OF THE "VICTORIA" DISASTER.

BY THE HON. WILLIAM McADOO, ASSISTANT SECRETARY OF THE NAVY.

THE appalling accident which resulted in the loss of H. M. S. "Victoria" and of so many brave men and gallant officers, has called forth many opinions, not only on the immediate causes which led to the catastrophe, but as to the lessons to be learned from it with regard to the construction of modern war vessels. The first question, I take it, that will be asked by the citizens of a country which ranks as a considerable naval power, and which is engaged in building war ships, is: "Does the accident show modern naval construction to be at fault, and will it lead to either a radical change in the make-up of the modern battle-ship, or result in its total abandonment for other types of ships or other modes of offensive or defensive warfare on the water?" To all of this, speaking for myself, I am inclined to reply in the negative.

While the best naval authorities agree that until we have before us the experience of an actual war with great naval powers as participants, the true value of the four factors of modern warfare—the gun, ram, armor and torpedo—must be more or less conjectural, yet there are certain known and demonstrated facts from which, by a consensus of opinion of the most scientific and ablest naval officers the world over, conclusions have been reached, upon the wisdom of which nations have staked and will continue to stake many lives and much money. Upon that which cannot be solved without actual war between equal combatants, the sinking of the "Victoria" casts little or no light. We know the tremendous power of a modern gun which makes those of the past wars seem ridiculous, and before which our old-time stone walled forts would be of as little value as a canvas tent; we know that a 110-ton gun firing a full charge strikes a blow equivalent to 60,000 foot tons, equal to raising the "Victoria" vertically six feet in one second; we know that it carries a projectile with the greatest force many miles; we know that special armor of a given thickness forged by specially constructed machinery and prepared in a certain way, possesses extraordinary powers of resistance; we know that armored plates showing a concave surface to a projectile are less likely to be penetrated than those that are flat; we know that a torpedo exploded fairly under the greatest ship will prove destructive, and it did not need this accident to show the terrible power of the blow of the ram. The accident, to my mind, does not either add to or detract from the importance of the ram, nor does it lessen in any way the value of the modern gun, with its long and accurate range, great velocity and flat trajectory of its projectile, its ability to train in any direction and fire heavy bursting charges of high explosives, which upon impact are intended to give the effect of an aerial torpedo. It is, as yet, the first and greatest weapon of offence or defence in modern warfare.

The primary object of the battle-ship is to carry the heaviest of such weapons, and also to resist in the greatest possible degree the impact of the projectiles of the enemy. In addition she combines the ram and the torpedo. In a word, the modern battle-ship is intended to be the best effort of science, experience, learning, invention and discovery to produce the highest development of a fighting machine on the water. The sinking of the "Victoria" in no wise condemns this monstrous product of skill and science as a supreme instrument of naval warfare. Different nations acting on different lines of naval policy, and mindful of the circumstances by which they are surrounded, may prefer not to depend on battle-ships, or, at least, not wholly to depend on them, but if any lesson has been learned from the late accident, which would change the character of naval vessels to be built for such a nation, say, for instance, as Great Britain, it is not known to those who are supposed to be best informed on those subjects.

A ten-thousand-ton ship delivering a cutting blow with her ram while going at a high rate of speed is simply irresistible by anything afloat or being built to float. What such a blow means may be estimated from this statement of a naval expert:

> "The 'Camperdown' has a weight of 10,600 tons and was moving at a rate of ten knots per hour, or 16.88 feet per second. This would give an impact of 46,900 foot-tons delivered by the sharp ram of the 'Camperdown.' That is equivalent to the blow that would be struck by a railroad train consisting of six large Pullman cars drawn by the heaviest of locomotives—say one of 120 tons—running at a speed of fifty miles per hour."

It is also equivalent to a force which would in one second of time lift the "Victoria" bodily four feet and more. Of course with enormous displacement an unsinkable ship might be built.

I do not mean to enter the field in which professional controversy rages as to the value of vessels depending wholly on the ability to ram an opponent. The recent disaster only illustrates the known destructiveness of the ram. The ram and torpedo are the deadly enemies of the warship, but the problem is, with what certainty, and accuracy, you can bring them in war into actual and deadly contact with a swift moving, powerfully armed, alert and vigilant enemy, provided with every modern safeguard and possessed not only of high speed, but of defensive and offensive power of the highest character, including, among his own weapons, a most formidable ram, every naval vessel now built being especially fitted for the purpose of a ram.

An accidental collision may occur at any time, but in action would a skilful commander, unless his motive or steering power were disabled, or unless his vessel had become enveloped in smoke or hampered by some other improbable and unlooked-for cause, give the enemy a chance to use the ram? The skill in manœuvering of the opposing commanders, the speed of the respective vessels, the facility with which they answer their steering gear are all factors in this problem. As against the greater speed of a vessel largely or wholly dependent for destructiveness on the part of its ram, it should, moreover, I think, be remembered that the all-around, protected and heavily-armed enemy would pour upon his pursuer a rapid and continuous fire from the guns of the main and secondary batteries, to which, if the ram is the principal or only weapon, little or no reply could be made. We can reasonably infer that this fire would be effective when we consider that with high-powered guns of 6, 8, 10 and 12 inch calibre, the angular elevation necessary to obtain ranges up to a nautical mile never exceed one and a half degrees. From these guns the projectiles are shot forth with a velocity so great that their trajectory approximates very closely to the horizontal, and the danger space for any vessel of considerable size would cover an area of about 200 yards in length.

What changes in naval architecture the accident may suggest, as to bulkheads and the means of quickly closing the doors leading to them, is a matter for professional consideration. On the whole, we may conclude that the great naval powers will continue to build battle-ships, their faith in them in no wise diminished by the late disaster. Until some effective and reliable means of reaching them, either from above or below the water, and applying to a vulnerable part heavy charges of high explosives has been discovered, vessels of the battle-ship and monitor types will be looked upon as the right arm of national defence, and as the most formidable of offensive opponents. Here in the United States the people rightfully look to the navy as the mainstay of coast defence. Fortifications are, of course, a necessary and proper adjunct, but with our long and exposed sea coast to defend, the heavy armored turret, that carries the greatest guns and moves swiftly and at will from place to place, is necessarily of more importance than a stationary battery on shore. The well-protected warship, moving at full speed, has decided advantages over the stationary fort. Our own great Farragut, even with wooden ships, made short work of successfully passing land batteries.

There are two lessons, however, which it seems to me we can learn with great profit in this country from the late disaster. The first is the necessity for squadron drills, and the practical manœuvring of fleets. There is no amount of theoretical learnng which will give the same results as this experience. Many of our ablest naval officers in the United States are very deeply impressed with the lack of practice of our own men in these practical evolutions. It would, in my judgment, be of great value to the country and the service could we have a series of practical manœuvres such as those in which the late Admiral Tryon distinguished himself in the British fleet movements in 1888. That we have not been able to keep up more or less constant practice by a squadron of evolution, is not the fault of the Department. Our navy is small, and is necessarily, for the protection of American interests, scattered all over the world. The demand for ships in distant waters is so great, and the number as yet so few, that we are not able to keep a large squadron in home waters, or mass them in foreign stations. Undoubtedly, however, this will be changed in the near future as new ships are put in commission. At any rate, it is to be hoped that our officers and men in the future will have more frequent opportunity for fleet drill, as it is the only practical way to acquire great skill and ability to handle ships in time of action, and is, moreover, the surest method of acquiring precision in that most important of things in the Navy, the art of signalling.

This leads to the second and greatest consideration, the importance of the personnel. With all his learning, persistence, skill and experience, with all the secrets he has wrenched from nature and learned from art, man has as yet made no machine superior to himself. He may cabin, confine, and chain the great forces to do his bidding, but the supreme intelligence which directs and controls is after all the master of the situation. Think for a moment of what depends upon the ability and courage of the man who, in battle, stands in a small armored tower, into which the light penetrates from a mere slit between the rim and the roof, through which he must see every movement of his enemy, and who directs every movement of his ship! On his intelligence, learning, experience, skill, courage, and nerve rests the safety of the ship, and the life of the crew, and the final outcome of the conflict. He holds in his hand the great powers which beget life and action in the ship, and at his touch she pours forth her fearfully destructive energies; a single false move, a signal misunderstood, a clouding of his vision, the tremor of his hand, the failure of his heart, a nervous collapse, an error of judgment, the lack of experience, and, above all, a failure to possess a quick and acute intelligence, and the cool courage to act with great promptness, and the contest which may involve a nation's rights, its honor, or the invasion of its territory, or the spoliation and humiliation of its people, is lost beyond retrieve. The best powers of invention, the persistent study of science, can beget no substitute for the human intelligence, which, in battle, is to control and direct the movements of these monster fighting-machines on the water. In the day of trial that nation will be most fortunate whose officers possess, in a large degree, the best qualities of mind and body, and a well-balanced combination of learning and experience, to which should be added the greatest possible devotion to the flag, begetting the highest blending of moral and physical courage.

The days when hostile cutlasses gleamed over the bulwarks of old-time frigates and officers cheered the men to repel boarders has passed away, but the all-important necessity for able and gallant officers and brave and efficient men to command and fight our ships is as great, if not greater, than ever. We have now in the United States reached a stage in the material building up of our navy when we may well turn our attention to the consideration of perfecting the welfare and high efficiency of the personnel. And here let me recall the words of Farragut who urged the "great advantage" of obtaining "command young." Most of the commanding officers of our civil war were men under thirty. The age has been gradually increased until now officers arriving at command rank are forty-seven, forty-eight or forty-nine years of age. When the captain is now more than ever the soul of the ship how necessary that he should possess those qualities which generally can only come by long fixed habit of command. One thing I am proud to say, that if the day of trial comes to us as a nation the American people can rest secure in the confidence that nowhere in the world is there a body of naval officers and men more devoted to their profession, better educated in the art of war, more faithful to their flag, prouder of their country, and possessed of more courage and ability than the officers and men of the United States Navy, and saying this I am withholding no just tribute to the exhibition of splendid discipline and cool bravery on the part of the gallant officers and seamen who went down with the ill-fated "Victoria."

WILLIAM MCADOO.